

these  $\kappa$  Leonid meteors was thus observed by Mr. T. W. Backhouse at Sunderland,<sup>1</sup> who found a pretty exact radiant-point near  $\mu$  Leonis, at  $146^\circ, +26'$ , of seven "Leonids," one as bright as Jupiter, leaving a streak for three seconds, and the rest small; seen with eight other meteors in 1h. 20m. of clear sky during some hours' watch before daybreak on that morning. By an apparently just similar deception, in the bright shower of Leonids mapped and assigned here to various foci on the morning of November 15th, 1896, a pretty compact region of divergence was noticed north of Leo, in Leo Minor, of four or five meteor-paths, at about  $155^\circ, +35'$ ,<sup>2</sup> as apparently composed of "Leonid stragglers." But at  $154^\circ, +40'$ , D(99) 118, there is a strong enduring shower-series of  $\mu$  Ursids, first well recorded in November by Mr. Denning at  $155^\circ, +36'$ , from about twenty swift white-meteors on November 26th–29th, 1876,<sup>3</sup> and observed in late years very frequently on the Leonid dates of November 10th–17th, within a few degrees of that position. As it is found to present itself also as an active stationary shower during the preceding and following months of October and December, no very cogent reasons, it would seem, can be admitted to exist for describing this shower's meteors, or those of the contemporary shower near  $\kappa$  Leonis, for want of better designations, as stragglers or erratic members of the main meteor-stream of the Leonids.

One or two tracks seen here, and some mapped by Mr. Denning, on November 6th–11th, appear to have proceeded from known radiant centres south of the Sickle-stars, near  $\sigma$  and  $\pi$  Leonis; but with these scarce exceptions no signs of swift-flighted meteors crossing Leo from south-eastern centres in Hydra and Virgo could be noticed with the brightness and abundance which those contemporary showers sometimes present on the yearly shower-nights of the Leonids. The main body of the ordinary meteors seen in these earlier nights' watches were pursuing leisurely, mostly short, but sometimes lengthy random

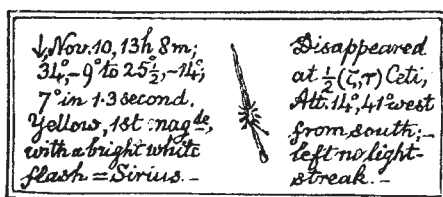


FIG. 2.

courses from many scattered radiant sources of more or less well-known positions among the constellations overhead, and in the north, west and south quarters of the sky. Of all these slow-paced systems, amounting in Mr. Denning's special list to thirty or forty centres of very undiversified looking meteor-flights, only one overhead radiant-point at  $\sigma$  Ursae Majoris, and the two south-westerly showers of the  $\alpha$ - $\epsilon$  and  $\xi$ - $\sigma$  Taurids were marked abundantly enough by meteor-paths to be perfectly identifiable. A number of other centre-points absorbed the rest of the recorded tracks in single, or at most in two or three connected flights, too few to fix their radiant's real places certainly during the far too restrictedly short starlight time of my three or four fine nights' watch to show more of those scantily-escorted flights or lonesomely projected flashes, and to disclose their focal points and stellar features of appearance properly.

From their persistencies, however, enabling them to be reckoned as belonging to the Bielid meteor-period, a projection which I made last year of about 220 observations obtained by different observers in former years, since 1861, of meteors of that yearly period, November 20th–30th,<sup>4</sup> exhibited more

fully than the less numerous observations made on earlier November nights this year could do, the relative strengths at that epoch (and therefore probably also in a nearly similar manner at the ten days earlier period of the Leonid displays), of several of these zenithal and western streams contained in Mr. Denning's Select List of Fifty ordinary co-Leonid Showers. To extend accordingly the illustrations which longer observations would have yielded, of the large array of ordinary showers included in Mr. Denning's Mid-November Radiant List a little further than the limited acquaintance, only with a few of them which this year's observations furnished, it may be useful to supplement this present partial review by a further position-list and some particular descriptions of several ordinary meteor-showers of the Bielid meteor-period, which were found to have been either transiently active or steadily productive during a long series of years, in those rather more comprehensive meteor-path projections.

A. S. HERSHEL.

### The Royal Society Catalogue and Psychology.

IN the original classification of the sciences for the purposes of the projected Royal Society Catalogue of Scientific Literature, Psychology was given an independent place. Recognising this, the International Psychological Congress at Munich, in 1896, appointed an English committee to do what they could to further the scheme in the name of the Congress. Following this, Dr. G. F. Stout, editor of *Mind*, then at Aberdeen, now at Oxford, was asked by Prof. Michael Foster to prepare a schedule for psychology. Dr. Stout sought the collaboration of the present writer, who represented the *Psychological Review* and its annual catalogue the *Psychological Index*. In the meantime, at the suggestion of Prof. Foster to the present writer, the question had come up in America as to the advisability of suspending our Index (which is now common to the *Zeitsch. f. Psychologie*, Berlin, and the *Année Psychologique*, Paris), with the preliminary understanding that if the Royal Society Catalogue issued an adequate list in psychology, it would be advisable to suspend the publication of the Index and support the Catalogue. Dr. Stout submitted the schedule he had prepared.

After a long period, in which no communication of any kind reaches Dr. Stout—nor has it yet!—the printed report of the conference of last June informs us that psychology has been classed under physiology, and the present writer learns from Sir M. Foster that the psychological schedule is to be cut up—if this action be finally confirmed by the Royal Society—and fractions of it inserted where place can be found for them under physiological headings.

Understanding that there is still a chance to reconsider this action, I venture as one of the joint proprietors and editors of the *Psychological Index*, whose existence is in question, and also in behalf of the reputation of psychology, to say:—

(1) If this action relegating Psychology to Physiology is carried out, the *Psychological Index* will continue to be issued and its subscribers retained.

(2) In that case some action is highly probable on the part of the International Congress of Psychologists meeting in Paris in the summer, seeing that they endorsed the former course of the Royal Society in giving the subject an independent schedule. At that congress the representatives of the French and German bibliographies mentioned are also to be in conference, with a result that may readily be foreseen.

(3) The present writer thinks he represents the competent opinion among psychologists in saying that the day is past for this sort of ignoring of the claims of one department of scientific knowledge at the instance of another. This was amply shown by the attitude of psychologists toward Prof. Richet's *Bibliog. Physiol.*, in which a similar treatment of psychology is carried out by one who attends psychological congresses and allows himself to be made prominent in them. It is interesting to know that Prof. Richet has been an active member of the Royal Society Conference.

Psychology is knowledge of the mind, not of the body—whatever method it may adopt to solve its peculiar problems—and to class it under physiology is about as reasonable as to class it under *cheese*—on the ground that cheese is sometimes green, green is a colour, and colour is a mental state!

It may be added that no criticism of the Royal Society

<sup>1</sup> "British Association Reports," 1878, pp. 320, and 329.

<sup>2</sup> NATURE, vol. lv. p. 175.

<sup>3</sup> "British Association Reports," 1877, pp. 164, 167.

<sup>4</sup> Prepared about this time last year for Dr. A. Hnatek, of Vienna, who has presented to the Vienna Academy of Sciences (*Sitzungs-berichte der kaiserlichen Akademie, Mathem.-Naturw. Classe*, Bd. cvii., Abth. ii.; December, 1898), an elaborate investigation both of the Bielids' radiant-point and of those of ordinary meteor-showers visible at the same time with the Bielids, from a widely amassed collection of meteor-observations for the period November 20th–30th, including among those made in Austria and supplied to him with numerous paths recorded at the Observatory of Vienna by Dr. Weiss, and in addition to similar contributions from Profs. Schiaparelli and Nyland, and to many paths recorded in the works of Dr. Schmidt, some published by Von Littrow, which were made at the Observatory of Vienna as long ago as the year 1837.

Committee is intended; but it is to be hoped it will adhere to its original classification.  
J. MARK BALDWIN.  
Oxford, December 18.

### The Stockholm Fisheries Conference and British Fishery Investigations.

FROM Mr. H. M. Kyle's letter in your issue of December 14, it is clear that he is ignorant of the present position of the British Government with regard to fishery investigations. The great obstacle in the way of such investigations, as every one who has taken any part whatever in their organisation is aware, has always been the want of adequate funds to carry on the researches. The investigations, if properly conducted, are very expensive, involving not only the employment of highly-trained naturalists, but also the equipment of laboratories on shore and of sea-going ships capable of visiting the fishing grounds. The latter item is so costly, that no vessel capable of keeping the sea has yet been systematically employed for scientific fishery work in British waters.

On account of the expense, there is little likelihood of investigations upon an adequate scale being attempted without the use of public money. This is recognised by the Government, and money has been spent by H.M. Treasury for biological and fishery researches in three different directions. In England the Marine Biological Association of the United Kingdom, which was started by private effort in order to promote (to use Prof. Huxley's words) "researches leading to the improvement of zoological and botanical science, and to an increase of our knowledge as regards the food, life-conditions and habits of British food-fishes and molluscs," received in 1885 a Government grant of 5000*l.* towards the cost of the erection of the first laboratory at Plymouth, and has since received an annual grant, which from 1892 has been 1000*l.* Altogether some 13,000*l.* of Government money has been spent, in addition to an equal amount derived from private sources.

In Scotland the Fishery Board receives from the public funds a yearly sum for scientific investigations which amounts, I believe, to about 3000*l.*; whilst in Ireland a single sum of 2,500*l.* has recently been granted to assist the fishery investigations of the Royal Dublin Society.

We may now examine in more detail the position of each of the three bodies entrusted by the Government with the expenditure of money for fishery work in England, Scotland, and Ireland respectively.

At the time of the foundation of the Marine Biological Association, the Government, in making the first grant of money, placed upon the Association the responsibility of doing for England work of the kind done in Scotland by the scientific department of the Fishery Board. Encouraged by the support received from public and private sources, the Association proceeded to lay down the necessary machinery for carrying out both scientific and economic work, and a sum of 12,000*l.* was spent in building and equipping the Laboratory at Plymouth as a first step in that direction.

The foundations of the Association were laid upon a liberal scale, involving the expenditure of a considerable capital, but the superstructure remained to be built. The subsequent yearly financial support was not on a scale commensurate with that given to the Association on its foundation, and it has never been possible to make full use of the machinery provided. By far the greater portion of the income of the Association is necessarily devoted to expenses of establishment and organisation, and only a small sum remains for the employment of naturalists to conduct investigations. The funds have never reached a figure which would render the maintenance of a sea-going vessel with which to reach the fishing grounds a question which could be practically considered. Having regard to the money at its disposal, the Association may fairly claim to have produced a body of work which in quality will compare with that done by any similar organisation elsewhere. It must not be supposed, however, that one man can produce the work of six, and it has never been possible to employ at Plymouth more than one naturalist devoting his attention to fishery work.

When, five years ago, the Council did me the honour of appointing me to the executive office of the Association, I undertook the duties of the post knowing that the justification for the yearly expenditure in maintaining the Laboratory in a state of efficiency lay, not in the amount of work which could be im-

mediately produced, but in the fact that a solid foundation had been laid, which was capable, with an increased income, of producing a very large amount of valuable work. Further experience has confirmed this view, and I have also been forced to admit, perhaps reluctantly, that the only practical method by which the necessary increase of income can be obtained is by the development, on the part of the Government, of the fishery branch of the work. That the work of the Association was never intended to be confined to what can be done at Plymouth is shown not only by its name and the avowed objects of its promoters, but also by the fact that for a number of years the Association maintained a naturalist and kept open a laboratory at Grimsby for the study of North Sea fisheries. The investigations made by Mr. Holt and Mr. Cunningham in this connection will, in usefulness, rank with the best fishery work which has been done in the North Sea, and it was due only to lack of funds that these investigations could not be continued.

Turning now to the Scottish Fishery Board, it will be admitted that, so far as its scientific investigations are concerned, a similar condition of things exists, in a less pronounced degree. For years an urgent appeal for a steamer capable of keeping the sea has been a constantly recurring feature in the Reports of the Board, and the scientific superintendent will be the first to agree with me in saying that the scientific staff is by no means numerically strong enough to carry out the investigations upon the scale which their importance and difficulty demand.

In Ireland, where the Royal Dublin Society is working in close connection with the fishery inspectors, and is supported by Government money, it has also been impossible to provide a proper vessel, and Mr. Holt is working single-handed, except for occasional volunteer help, although he has accommodation for a number of naturalists.

All past experience has shown that the British Government is very reluctant to spend money upon scientific investigations of any kind, and at the present time it is practically certain that any increased expenditure in this direction will be limited in amount. It is of the utmost importance that what money is spent should be put to the best possible use. Under the circumstances described, and considering the amount of public money which has already been expended on organisations and establishments, all of which are awaiting development to produce their full return of work, I cannot see any justification for asking the Government, as a next step, to provide a considerable sum for a new organisation with a new laboratory, which to judge by all that has happened in the past would soon find itself as unable as its predecessors to adequately carry out its schemes, from the want of proper financial support.

The first demand should be for such a slight reorganisation of existing bodies as will bring them into working contact, a rearrangement which could be brought about with little if any increase of expenditure, and a proper provision of ships and naturalists for carrying out the investigations. When this has been obtained the co-ordination of British investigations with those of neighbouring countries will be a matter of no great difficulty, and one which, in my opinion, can be carried out with no such expenditure for organisation as that suggested by the Stockholm Conference.

As Mr. Kyle has seen fit to introduce matters of a somewhat personal nature into his letter, I may, perhaps, be permitted to say that I make no pretence whatever of being a specialist in fishery investigation, my scientific work having for the most part lain in other directions, nor is it my intention to attempt to alter this condition of things. Should the Government see fit to largely develop the work of the Marine Biological Association on the lines I have indicated, I fully realise that they will wish to have in the executive post a specialist in fishery matters, and this is an eventuality which I am prepared to meet. I should also add that the opinions expressed in this letter are entirely of a personal nature, and I am quite unaware whether or not they would be shared by a majority of the members of the Council of the Association.

E. J. ALLEN.

The Laboratory, Plymouth, December 16, 1899.

### Dr. W. Kobelt and the Mediterranean Fauna.

THE second part of Dr. W. Kobelt's "*Studien zur Zoogeographie*" has been in my hands since its issue, viz., about a year ago, and I have had ample time to become fully acquainted with its